This key should allow you to understand why you choose the option you did (beyond just getting a question right or wrong). More instructions on how to use this key can be found here.

If you have a suggestion to make the keys better, please fill out the short survey here.

Note: This key is auto-generated and may contain issues and/or errors. The keys are reviewed after each exam to ensure grading is done accurately. If there are issues (like duplicate options), they are noted in the offline gradebook. The keys are a work-in-progress to give students as many resources to improve as possible.

---

1. Solve the modeling problem below, if possible.

   A new virus is spreading throughout the world. There were initially 3 many cases reported, but the number of confirmed cases has doubled every 4 days. How long will it be until there are at least 100000 confirmed cases?

   The solution is About 61 days, which is option C.

   A. About 22 days

      You modeled the situation with e as the base and did not apply the properties of log correctly.

   B. About 26 days

      You modeled the situation correctly but did not apply the properties of log correctly.

   C. About 61 days

      * This is the correct option.

   D. About 42 days

      You modeled the situation with e as the base, but solved correctly otherwise.

   E. There is not enough information to solve the problem.

      If you chose this option, please contact the coordinator to discuss why you think this is the case.

   General Comment: Set up the model the same as in Module 11M. Then, plug in 100000 and solve for d in your model.

---

2. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

   Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $600 educational expense each year. Before college, Aubrey saved up $6000. She knows she will need to pay $1000 in rent a month, $70 for food a week, and $40 in other weekly expenses.

   The solution is $C(x) = 1440x$, which is option A.

   A. $C(x) = 1440x$

      * This is the correct option.

   B. $C(x) = 1110$

      This treats weekly expenses as month expenses rather than multiplying each weekly expense by 4 AND does not account for these expenses per month.

   C. $C(x) = 1110x$

This treats weekly expenses as monthly expenses rather than multiplying each weekly expense by 4.

D. $C(x) = 1440$

This describes the costs as if they are one-time only and not monthly.

E. None of the above.

You may have chosen this as you thought you were modeling total income or total budget.

General Comment: This is a Costs, Profit, Revenue question! The most common issues here are: (1) not converting the weekly costs to monthly costs, (2) treating the one-time values like savings and educational expense as happening per month, and (3) not checking that your model is for cost, profit [income], or revenue [budget].

---

3. For the scenario below, find the variation constant k of the model (if possible).

In an alternative galaxy, the square of the time, T (Earth years), required for a planet to orbit Sun χ increases as the cube of the distance, d (AUs), that the planet is from Sun χ increases. For example, when Ea's average distance from Sun χ is 7, it takes 54 Earth days to complete an orbit.

The solution is $k = 8.501$, which is option C.

A. $k = 1000188.000$

This corresponds to the model $T^2 = \dfrac{k}{d^3}$.

B. $k = 3.841$

This corresponds to the model $T^{1/2} = kd^{1/3}$.

C. $k = 8.501$

* This is the correct option corresponding to the model $T^2 = kd^3$.

D. $k = 4.028$

This copies the constant used in the homework.

E. Unable to compute the constant based on the information given.

This corresponds to believing you cannot determine the type of model from the information given.

General Comment: Since T increases proportionally as d increases, we know this is a direct variation model.

---

4. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 21 liter 44 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 17 percent and 44 percent solutions, what was the amount she used of the 17 percent solution?

The solution is $-0.00 liters$, which is option C.

A. $10.50 liters$

This would be correct if Brittany used equal parts of each solution.

B. $3.66 liters$

This was a random value. If this was not a guess, contact the coordinator to talk about how you got this value.

C. $-0.00liters$

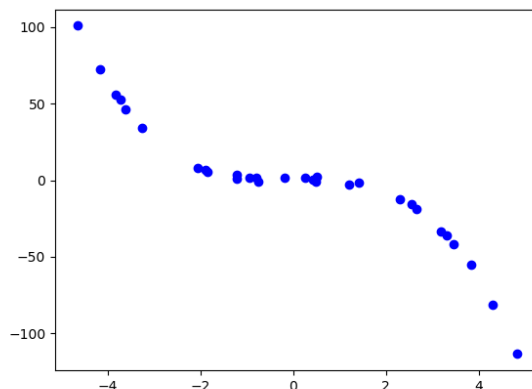*This is the correct option.

D. $21.00liters$

This is the concentration of 44 percent solution.

E. There is not enough information to solve the problem.

You may have chose this if you thought you needed to know how much of the second solution was used in the problem. Remember that the total minus the first solution would give you the second amount used.

General Comment: Build the model exactly as you did in Module 9M. Then, solve for the volume you are looking for.

5. Determine the appropriate model for the graph of points below.

The solution is Non-linear Power model, which is option D.

A. Linear model

For this to be the correct option, we need to see a mostly straight line of points.

B. Logarithmic model

For this to be the correct option, we want a rapid change early, then an extremely slow change later.

C. Exponential model

For this to be the correct option, we want an extremely slow change early, then a rapid change later.

D. Non-linear Power model

For this to be the correct option, we need to see a polynomial or rational shape.

E. None of the above

For this to be the correct option, we want to see no pattern in the points.

General Comment: This question is testing if you can associate the models with their graphical representation. If you are having trouble, go back to the corresponding Core module to learn about the specific function you are having trouble recognizing.

---

6. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

   Pringles wants to add 33 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

   The solution is About 10 percent, which is option A.

   A. About 10 percent

      * This is the correct option.

   B. About 3 percent

      This corresponds to not solving for the increase properly.

   C. About 16 percent

      This corresponds to treating both radius and height as equal contributors and not solving correctly.

   D. About 15 percent

      This corresponds to solving correctly but treating both radius and height as equal contributors to the volume.

   E. None of the above

      If you chose this, please contact the coordinator to discus how you solved the problem.

   General Comment: Remember that when plugging the increases of values in, you need to treat it as that percentage above 100. For example, a 5 percent increase means 105 percent.

---

7. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

   Pringles wants to add 37 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

   The solution is About 11 percent, which is option C.

   A. About 18 percent

      This corresponds to treating both radius and height as equal contributors and not solving correctly.

   B. About 3 percent

      This corresponds to not solving for the increase properly.

   C. About 11 percent

      * This is the correct option.

   D. About 17 percent

   This corresponds to solving correctly but treating both radius and height as equal contributors to the volume.

   E. None of the above

      If you chose this, please contact the coordinator to discus how you solved the problem.

General Comment: Remember that when plugging the increases of values in, you need to treat it as that percentage above 100. For example, a 5 percent increase means 105 percent.

---

8. Determine the appropriate model for the graph of points below.
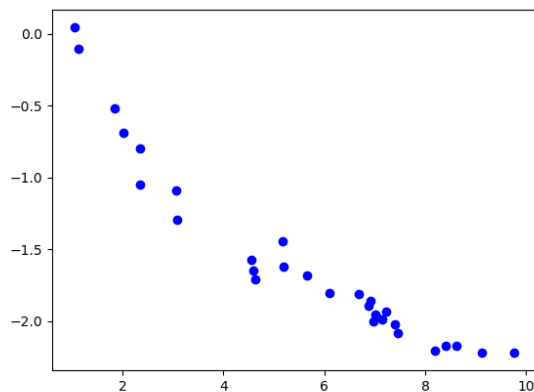
The solution is Logarithmic model, which is option D.

A. Exponential model

For this to be the correct option, we want an extremely slow change early, then a rapid change later.

B. Linear model

For this to be the correct option, we need to see a mostly straight line of points.

C. Non-linear Power model

For this to be the correct option, we need to see a polynomial or rational shape.

D. Logarithmic model

For this to be the correct option, we want a rapid change early, then an extremely slow change later.

E. None of the above

For this to be the correct option, we want to see no pattern in the points.

General Comment: This question is testing if you can associate the models with their graphical representation. If you are having trouble, go back to the corresponding Core module to learn about the specific function you are having trouble recognizing.

---

9. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 8 many cases reported, but the number of confirmed cases has tripled every 3 days. How long will it be until there are at least 100000 confirmed cases?

The solution is About 26 days, which is option B.

A. About 29 days

You modeled the situation with e as the base, but solved correctly otherwise.

B. About 26 days

    * This is the correct option.

C. About 11 days

    You modeled the situation correctly but did not apply the properties of log correctly.

D. About 12 days

    You modeled the situation with e as the base and did not apply the properties of log correctly.

E. There is not enough information to solve the problem.

    If you chose this option, please contact the coordinator to discuss why you think this is the case.

General Comment: Set up the model the same as in Module 11M. Then, plug in 100000 and solve for d in your model.

---

10. Solve the modeling problem below, if possible.

    In CHM2045L, Brittany created a 15 liter 10 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 8 percent and 35 percent solutions, what was the amount she used of the 8 percent solution?

The solution is $13.89 liters$, which is option D.

  A. $12.28 liters$

    This was a random value. If this was not a guess, contact the coordinator to talk about how you got this value.

  B. $1.11 liters$

    This is the concentration of 35 percent solution.

  C. $7.50 liters$

    This would be correct if Brittany used equal parts of each solution.

  D. $13.89 liters$

    *This is the correct option.

  E. There is not enough information to solve the problem.

    You may have chose this if you thought you needed to know how much of the second solution was used in the problem. Remember that the total minus the first solution would give you the second amount used.

General Comment: Build the model exactly as you did in Module 9M. Then, solve for the volume you are looking for.

---

11. Solve the modeling problem below, if possible.

    A new virus is spreading throughout the world. There were initially 8 many cases reported, but the number of confirmed cases has doubled every 1 days. How long will it be until there are at least 100000 confirmed cases?

The solution is About 14 days, which is option A.

A. About 14 days

   * This is the correct option.

B. About 4 days

   You modeled the situation with e as the base and did not apply the properties of log correctly.

C. About 5 days

   You modeled the situation correctly but did not apply the properties of log correctly.

D. About 10 days

   You modeled the situation with e as the base, but solved correctly otherwise.

E. There is not enough information to solve the problem.

   If you chose this option, please contact the coordinator to discuss why you think this is the case.

General Comment: Set up the model the same as in Module 11M. Then, plug in 100000 and solve for d in your model.

---

12. For the scenario below, find the variation constant k of the model (if possible).

    In an alternative galaxy, the cube of the time, T (Earth years), required for a planet to orbit Sun χ decreases as the square of the distance, d (AUs), that the planet is from Sun χ decreases. For example, when Ea's average distance from Sun χ is 10, it takes 67 Earth days to complete an orbit.

    The solution is $k = 3007.630$, which is option D.

    A. $k = 1.284$

       This corresponds to the model $T^{1/3} = kd^{1/2}$.

    B. $k = 30076300.000$

       This corresponds to the model $T^3 = \dfrac{k}{d^2}$.

    C. $k = 4.028$

       This copies the constant used in the homework.

    D. $k = 3007.630$

       * This is the correct option corresponding to the model $T^3 = kd^2$.

    E. Unable to compute the constant based on the information given.

       This corresponds to believing you cannot determine the type of model from the information given.

    General Comment: Since T decreases proportionally as d decreases, we know this is a direct variation model.

---

13. For the scenario below, find the variation constant k of the model (if possible).

    In an alternative galaxy, the square of the time, T (Earth years), required for a planet to orbit Sun χ decreases as the cube of the distance, d (AUs), that the planet is from Sun χ decreases. For example, when Ea's average distance from Sun χ is 10, it takes 91 Earth days to complete an orbit.

    The solution is $k = 8.281$, which is option A.

    A. $k = 8.281$

       * This is the correct option corresponding to the model $T^2 = kd^3$.

B. $k = 4.428$

This corresponds to the model $T^{1/2} = kd^{1/3}$.

C. $k = 4.028$

This copies the constant used in the homework.

D. $k = 8281000.000$

This corresponds to the model $T^2 = \dfrac{k}{d^3}$.

E. Unable to compute the constant based on the information given.

This corresponds to believing you cannot determine the type of model from the information given.

General Comment: Since T decreases proportionally as d decreases, we know this is a direct variation model.

---

14. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 25 liter 18 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 9 percent and 21 percent solutions, what was the amount she used of the 21 percent solution?

The solution is $18.75 liters$, which is option B.

A. $9.79 liters$

This was a random value. If this was not a guess, contact the coordinator to talk about how you got this value.

B. $18.75 liters$

*This is the correct option.

C. $6.25 liters$

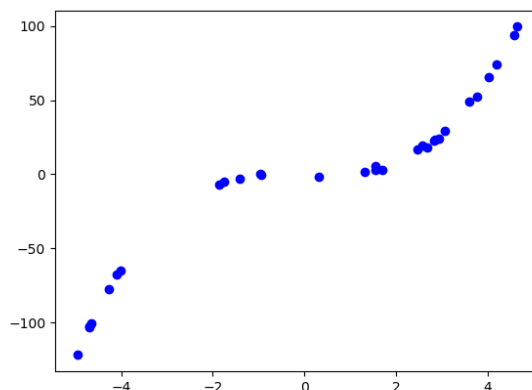This is the concentration of 9 percent solution.

D. $12.50 liters$

This would be correct if Brittany used equal parts of each solution.

E. There is not enough information to solve the problem.

You may have chose this if you thought you needed to know how much of the second solution was used in the problem. Remember that the total minus the first solution would give you the second amount used.

General Comment: Build the model exactly as you did in Module 9M. Then, solve for the volume you are looking for.

---

15. Determine the appropriate model for the graph of points below.

The solution is Non-linear Power model, which is option D.

A. Exponential model

   For this to be the correct option, we want an extremely slow change early, then a rapid change later.

B. Logarithmic model

   For this to be the correct option, we want a rapid change early, then an extremely slow change later.

C. Linear model

   For this to be the correct option, we need to see a mostly straight line of points.

D. Non-linear Power model

   For this to be the correct option, we need to see a polynomial or rational shape.

E. None of the above

   For this to be the correct option, we want to see no pattern in the points.

General Comment: This question is testing if you can associate the models with their graphical representation. If you are having trouble, go back to the corresponding Core module to learn about the specific function you are having trouble recognizing.

---

16. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

    Pringles wants to add 45 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

    The solution is About 13 percent, which is option A.

    A. About 13 percent

       * This is the correct option.

    B. About 22 percent

       This corresponds to treating both radius and height as equal contributors and not solving correctly.

    C. About 20 percent

This corresponds to solving correctly but treating both radius and height as equal contributors to the volume.

D. About 15 percent

This corresponds to not solving for the increase properly.

E. None of the above

If you chose this, please contact the coordinator to discus how you solved the problem.

General Comment: Remember that when plugging the increases of values in, you need to treat it as that percentage above 100. For example, a 5 percent increase means 105 percent.

---

17. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

    Pringles wants to add 49 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

    The solution is About 14 percent, which is option B.

    A. About 22 percent

       This corresponds to solving correctly but treating both radius and height as equal contributors to the volume.

    B. About 14 percent

       * This is the correct option.

    C. About 16 percent

       This corresponds to not solving for the increase properly.

   D. About 24 percent

       This corresponds to treating both radius and height as equal contributors and not solving correctly.

    E. None of the above

       If you chose this, please contact the coordinator to discus how you solved the problem.

    General Comment: Remember that when plugging the increases of values in, you need to treat it as that percentage above 100. For example, a 5 percent increase means 105 percent.

---

18. Determine the appropriate model for the graph of points below.
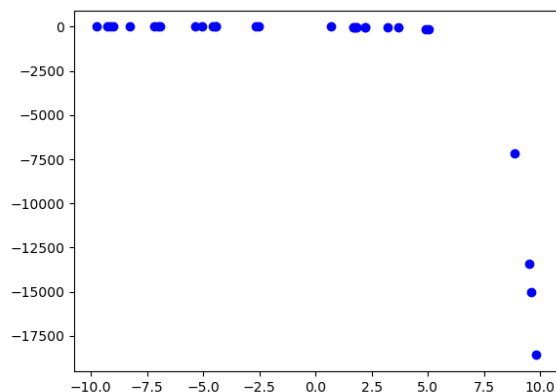
The solution is Exponential model, which is option A.

A. Exponential model

For this to be the correct option, we want an extremely slow change early, then a rapid change later.

B. Logarithmic model

For this to be the correct option, we want a rapid change early, then an extremely slow change later.

C. Linear model

For this to be the correct option, we need to see a mostly straight line of points.

D. Non-linear Power model

For this to be the correct option, we need to see a polynomial or rational shape.

E. None of the above

For this to be the correct option, we want to see no pattern in the points.

General Comment: This question is testing if you can associate the models with their graphical representation. If you are having trouble, go back to the corresponding Core module to learn about the specific function you are having trouble recognizing.

___

19. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 6 many cases reported, but the number of confirmed cases has tripled every 5 days. How long will it be until there are at least 1000000 confirmed cases?

The solution is About 55 days, which is option A.

A. About 55 days

* This is the correct option.

B. About 25 days

You modeled the situation with e as the base and did not apply the properties of log correctly.

C. About 24 days

You modeled the situation correctly but did not apply the properties of log correctly.

D. About 61 days

You modeled the situation with e as the base, but solved correctly otherwise.

E. There is not enough information to solve the problem.

If you chose this option, please contact the coordinator to discuss why you think this is the case.

General Comment: Set up the model the same as in Module 11M. Then, plug in 1000000 and solve for d in your model.

---

20. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 15 liter 10 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 7 percent and 18 percent solutions, what was the amount she used of the 18 percent solution?

The solution is $4.09 liters$, which is option D.

A. $5.09 liters$

This was a random value. If this was not a guess, contact the coordinator to talk about how you got this value.

B. $7.50 liters$

This would be correct if Brittany used equal parts of each solution.

C. $10.91 liters$

This is the concentration of 7 percent solution.

D. $4.09 liters$

*This is the correct option.

E. There is not enough information to solve the problem.

You may have chose this if you thought you needed to know how much of the second solution was used in the problem. Remember that the total minus the first solution would give you the second amount used.

General Comment: Build the model exactly as you did in Module 9M. Then, solve for the volume you are looking for.

---

21. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 4 many cases reported, but the number of confirmed cases has doubled every 5 days. How long will it be until there are at least 1000 confirmed cases?

The solution is About 40 days, which is option D.

A. About 17 days

You modeled the situation correctly but did not apply the properties of log correctly.

B. About 28 days

You modeled the situation with e as the base, but solved correctly otherwise.

C. About 15 days

You modeled the situation with e as the base and did not apply the properties of log correctly.

D. About 40 days

* This is the correct option.

E. There is not enough information to solve the problem.

If you chose this option, please contact the coordinator to discuss why you think this is the case.

General Comment: Set up the model the same as in Module 11M. Then, plug in 1000 and solve for d in your model.

---

22. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $400 educational expense each year. Before college, Aubrey saved up $8000. She knows she will need to pay $900 in rent a month, $80 for food a week, and $48 in other weekly expenses.

The solution is none of the above., which is option E.

A. $B(x) = 400x + 8000$

This treats the educational expense as something you get every month rather than a 1-time payment and is modeling Income, not Budget.

B. $B(x) = 8400 - 1028x$

This treats weekly expenses as month expenses rather than multiplying each weekly expense.

C. $B(x) = 8000x + 400$

This treats the savings as something you get every month rather than a 1-time payment and is modeling Income, not Budget.

D. $B(x) = 8400 - 1412x$

E. None of the above.

* This is the correct option as the model should be $B(x) = 1412 - 8400x$.

General Comment: This is a Costs, Profit, Revenue question! The most common issues here are: (1) not converting the weekly costs to monthly costs, (2) treating the one-time values like savings and educational expense as happening per month, and (3) not checking that your model is for cost, profit [income], or revenue [budget].

---

23. For the information provided below, construct a linear model that describes her total budget, B, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $800 educational expense each year. Before college, Aubrey saved up $8000. She knows she will need to pay $1200 in rent a month, $80 for food a week, and $56 in other weekly expenses.

The solution is none of the above., which is option E.

A. $B(x) = 8800 - 1336x$

This treats weekly expenses as month expenses rather than multiplying each weekly expense.

B. $B(x) = 8800 - 1744x$

C. $B(x) = 800x + 8000$

This treats the educational expense as something you get every month rather than a 1-time payment and is modeling Income, not Budget.

D. $B(x) = 8000x + 800$

This treats the savings as something you get every month rather than a 1-time payment and is modeling Income, not Budget.

E. None of the above.

* This is the correct option as the model should be $B(x) = 1744 - 8800x$.

General Comment: This is a Costs, Profit, Revenue question! The most common issues here are: (1) not converting the weekly costs to monthly costs, (2) treating the one-time values like savings and educational expense as happening per month, and (3) not checking that your model is for cost, profit [income], or revenue [budget].

_____

24. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 20 liter 25 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 11 percent and 29 percent solutions, what was the amount she used of the 29 percent solution?

The solution is $15.56 liters$, which is option B.

A. $4.44 liters$

This is the concentration of 11 percent solution.

B. $15.56 liters$

*This is the correct option.

C. $10.00 liters$

This would be correct if Brittany used equal parts of each solution.

D. $5.61 liters$

This was a random value. If this was not a guess, contact the coordinator to talk about how you got this value.

E. There is not enough information to solve the problem.

You may have chose this if you thought you needed to know how much of the second solution was used in the problem. Remember that the total minus the first solution would give you the second amount used.

General Comment: Build the model exactly as you did in Module 9M. Then, solve for the volume you are looking for.

_____

25. Determine the appropriate model for the graph of points below.
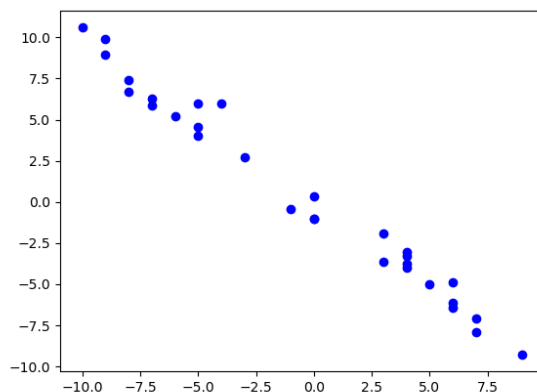
The solution is Linear model, which is option C.

A. Logarithmic model

For this to be the correct option, we want a rapid change early, then an extremely slow change later.

B. Exponential model

For this to be the correct option, we want an extremely slow change early, then a rapid change later.

C. Linear model

For this to be the correct option, we need to see a mostly straight line of points.

D. Non-linear Power model

For this to be the correct option, we need to see a polynomial or rational shape.

E. None of the above

For this to be the correct option, we want to see no pattern in the points.

General Comment: This question is testing if you can associate the models with their graphical representation. If you are having trouble, go back to the corresponding Core module to learn about the specific function you are having trouble recognizing.

26. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 27 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

The solution is About 8 percent, which is option B.

A. About 13 percent

This corresponds to solving correctly but treating both radius and height as equal contributors to the volume.

B. About 8 percent

* This is the correct option.

C. About 14 percent

This corresponds to treating both radius and height as equal contributors and not solving correctly.

D. About 3 percent

This corresponds to not solving for the increase properly.

E. None of the above

If you chose this, please contact the coordinator to discus how you solved the problem.

General Comment: Remember that when plugging the increases of values in, you need to treat it as that percentage above 100. For example, a 5 percent increase means 105 percent.

---

27. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 24 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

The solution is About 7 percent, which is option D.

A. About 3 percent

This corresponds to not solving for the increase properly.

B. About 11 percent

This corresponds to solving correctly but treating both radius and height as equal contributors to the volume.

C. About 12 percent

This corresponds to treating both radius and height as equal contributors and not solving correctly.

D. About 7 percent

* This is the correct option.

E. None of the above

If you chose this, please contact the coordinator to discus how you solved the problem.

General Comment: Remember that when plugging the increases of values in, you need to treat it as that percentage above 100. For example, a 5 percent increase means 105 percent.

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28. Determine the appropriate model for the graph of points below.
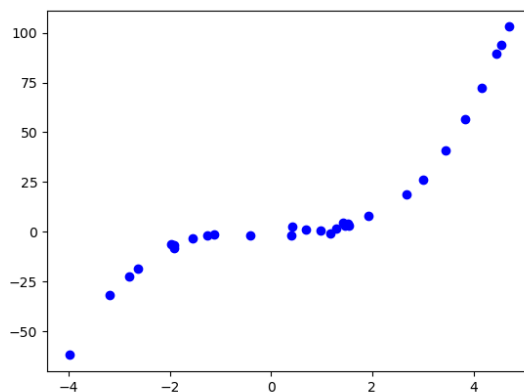
The solution is Non-linear Power model, which is option C.

A. Logarithmic model

For this to be the correct option, we want a rapid change early, then an extremely slow change later.

B. Linear model

For this to be the correct option, we need to see a mostly straight line of points.

C. Non-linear Power model

For this to be the correct option, we need to see a polynomial or rational shape.

D. Exponential model

For this to be the correct option, we want an extremely slow change early, then a rapid change later.

E. None of the above

For this to be the correct option, we want to see no pattern in the points.

General Comment: This question is testing if you can associate the models with their graphical representation. If you are having trouble, go back to the corresponding Core module to learn about the specific function you are having trouble recognizing.

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29. Solve the modeling problem below, if possible.

A new virus is spreading throughout the world. There were initially 6 many cases reported, but the number of confirmed cases has quadrupled every 4 days. How long will it be until there are at least 1000000 confirmed cases?

The solution is About 35 days, which is option B.

A. About 49 days

You modeled the situation with e as the base, but solved correctly otherwise.

B. About 35 days

* This is the correct option.

C. About 20 days

You modeled the situation with e as the base and did not apply the properties of log correctly.

    D. About 18 days

        You modeled the situation correctly but did not apply the properties of log correctly.

    E. There is not enough information to solve the problem.

        If you chose this option, please contact the coordinator to discuss why you think this is the case.

General Comment: Set up the model the same as in Module 11M. Then, plug in 1000000 and solve for d in your model.

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30. Solve the modeling problem below, if possible.

    In CHM2045L, Brittany created a 24 liter 38 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 14 percent and 42 percent solutions, what was the amount she used of the 14 percent solution?

The solution is $3.43 liters$, which is option D.

    A. $12.00 liters$

        This would be correct if Brittany used equal parts of each solution.

    B. $20.57 liters$

        This is the concentration of 42 percent solution.

    C. $10.45 liters$

        This was a random value. If this was not a guess, contact the coordinator to talk about how you got this value.

    D. $3.43 liters$

        *This is the correct option.

    E. There is not enough information to solve the problem.

        You may have chose this if you thought you needed to know how much of the second solution was used in the problem. Remember that the total minus the first solution would give you the second amount used.

General Comment: Build the model exactly as you did in Module 9M. Then, solve for the volume you are looking for.